

**PROGRAM DESCRIPTION FOR UNDERGRADUATE DEGREE IN  
SILVICULTURE**

*(according to Decision No. 604/QĐ-ĐHNL dated August 09, 2024, by the Rector of Thai Nguyen University of Agriculture and Forestry)*

**I. Program Description**

**1. Introduction to the Training Program**

The forestry engineering training program provides learners with a comprehensive understanding of: sustainable forest development, biodiversity conservation, and forest business. The forestry training program for 2024 has five specific objectives focused on equipping students with knowledge and skills to promote sustainable forest development, conserve biodiversity, and enhance learners' awareness and responsibility regarding forestry.

Graduates of the forestry program can work in training organizations, state management agencies, forestry enterprises, and international organizations. To date, approximately 2,200 students have graduated over 4.5 years of training. The forestry training program for 2024 adheres to the development strategy of the school issued before November 2024.

**2. General Information about the Training Program**

Program Name (in Vietnamese)	Kỹ sư Lâm sinh
Program Name (in English)	Silviculture Engineer
Program Code	7620205
Degree Awarding Institution	Thai Nguyen University of Agriculture and Forestry – Thai Nguyen University
Degree Title	Engineer of Silviculture
Level	Undergraduate
Required Credits	152
Mode of Study	Full-time
Duration of Study	4 – 4,5 years
Admission Requirements	<ul style="list-style-type: none"><li>- Admission based on the results of the high school graduation exam</li><li>- Admission based on high school academic performance</li><li>- Admission based on the V-SAT assessment scores of the University of Natural Sciences</li><li>- Direct admission: Students who have won national</li></ul>
Scope of admission	Admission is open to students from across the country.
Graduation Requirements	Accumulate a total of 152 credits; The overall GPA must be 2.0 or higher; Hold certificates in national defense education and physical education; Meet foreign language requirements; Information technology requirements according to the regulations of the Ministry of Education and Training.
Date of Program Descriptionn Update	12/2024
Website	<a href="https://fof.tuaf.edu.vn/vi/dao-tao">https://fof.tuaf.edu.vn/vi/dao-tao</a>

	<a href="https://fof.tuaf.edu.vn/vi/bo-mon-lam-sinh">https://fof.tuaf.edu.vn/vi/bo-mon-lam-sinh</a>
Facebook	<a href="https://www.facebook.com/groups/1436464946642003">https://www.facebook.com/groups/1436464946642003</a>
Reference Programs for Curriculum Development	- Silviculture Program in Vietnam National University of Forestry

### 3. Program Objectives

#### 3.1. General Objectives

Training silviculture engineers with an application-oriented approach so that learners acquire comprehensive professional knowledge, research capacity, and the development of scientific and technological applications; possess practical skills and the ability to work independently; have good health, creativity, and professional responsibility to meet the requirements of socio-economic development, ensure national defense, security, and international integration.

#### 3.2. Specific Objectives

- PO1: Knowledge of natural sciences, social sciences, sports, culture, politics, security, and national defense;
- PO2: Apply fundamental knowledge in forestry to sustainable forest development, biodiversity conservation, and forest business.
- PO3: Analyze knowledge in forestry related to sustainable forest development, biodiversity conservation, and forest business.
- PO4: Apply supplementary knowledge in forestry to sustainable forest development, biodiversity conservation, and forest business.
- PO5: Apply interdisciplinary knowledge to enhance learners' awareness and responsibility.

#### 3.3. Program Learning Outcomes

In 2024, the learning outcomes of the Forestry Training Program consist of 12 program learning outcomes, including 5 program learning outcomes related to knowledge, 5 program learning outcomes related to skills, and 2 outcomes related to autonomy and accountability. Specifically:

PLOs	Contents
<b>Knowledge</b>	
<b>PLO1</b>	Have knowledge of natural and social sciences, politics, military, security, national defense, sports, and culture in learning and professional activities.
<b>PLO2</b>	Apply technological solutions in forest development, biodiversity conservation, and forest business (design - exploitation - processing) in the field of Forestry.
<b>PLO3</b>	Apply technologies in seedling production, forest plant classification, and land use planning in forestry business operations.
<b>PLO4</b>	Apply knowledge of planning, organizing, and supervising in the process of forest resource production and management, as well as forest restoration and development.
<b>PLO5</b>	Integrate practical knowledge about the value chain of forestry products, deep theoretical knowledge about forestry techniques in planting and restoring forests, forest environmental services, and responding to climate change.
<b>Skills</b>	
<b>PLO6</b>	Apply skills in surveying, designing, operating nurseries, afforestation, and restoring multi-layered canopy forests, as well as implementing agroforestry.

<b>PLO7</b>	Apply skills in using certain software for map construction, monitoring forest resource changes, fire prevention, and biodiversity surveillance.
<b>PLO8</b>	Use skills to address issues related to forest development, management, and protection, including calculating greenhouse gas emissions.
<b>PLO9</b>	Utilize soft skills (communication, presentation, negotiation, planning, working in multicultural environments, multimedia, and globalization), with the ability to think critically, conduct scientific research, and transfer scientific and technological knowledge.
<b>PLO10</b>	Use foreign languages and computer skills in professional activities according to regulations.
<b>Autonomy and Responsibility</b>	
<b>PLO11</b>	Adopt and adhere to professional ethics, professional demeanor, and a sense of responsibility in work, ready to adapt to different work environments and conditions.
<b>PLO12</b>	Comply with legal regulations and professional ethics.

*Note: The required performance levels are based on Bloom's Taxonomy of Educational Objectives (Anderson, L.W., & Krathwohl, D.R., 2001).*

**Table 2: The matrix of programme objectives and learning outcomes**

Program objectives (POs) Mục tiêu của CTĐT	Program learning outcomes (PLOs) Chuẩn đầu ra mong đợi của CTĐT											
	1	2	3	4	5	6	7	8	9	10	11	12
<b>PO1</b>	x										x	x
<b>PO2</b>		x	x	x	x						x	x
<b>PO3</b>						x	x	x				x
<b>PO4</b>									x	x	x	
<b>PO5</b>											x	x

#### 4. Program Content

Order	Course	English name	Number of credits	Number of theoretical periods	Number of practical periods	Course code
<b>A. Kiến thức giáo dục đại cương</b>		<b>Basic Subject Knowledge</b>	<b>38</b>			
<b>I. Các học phần bắt buộc (34 TC)</b>		<b>Compelled Subjects</b>	<b>34</b>			
<b>a) Lý luận chính trị</b>		<b>Polictice Science</b>	<b>11</b>			
1	Chủ nghĩa xã hội khoa học	Science socialism	2	30		CB702001

Order	Course	English name	Number of credits	Number of theoretical periods	Number of practical periods	Course code
2	Kinh tế chính trị Mác - Lê nin	Political economy of Marxism and Leninism	2	30		CB702002
3	Lịch sử Đảng cộng sản Việt Nam	Vietnamese Communist Party History	2	30		CB702003
4	Triết học Mác - Lê Nin	Philosophy of Marxism and Leninism	3	45		CB703004
5	Tư tưởng Hồ Chí Minh	Ho Chi Minh Ideology	2	30		CB702005
<b>b) Tin học, Khoa học tự nhiên</b>		Informatics, natural sciences	<b>11</b>			
6	Hóa học	Chemistry	4	50	20	CB704006
7	Sinh học	Biology	2	25	10	CB702007
8	Tin học đại cương	General Informatics	2	15	30	NN702008
9	Xác suất thống kê	Probability and Statistics	3	45		CB703009
<b>c) Ngoại ngữ</b>		Foreign Language	<b>8</b>			
11	Tiếng Anh 1	English 1	3	45		NN703011
12	Tiếng Anh 2	English 2	3	45		NN703012
13	Tiếng Anh 3	English 3	2	30		NN703013
<b>d) Pháp luật, Kinh doanh và quản lý</b>		Business and management	<b>4</b>			
14	Đổi mới sáng tạo và khởi nghiệp	Innovation and entrepreneurship	2	30		KN702014
15	Pháp luật đại cương	Foundation law	2	30		TN702015
<b>II. Các học phần tự chọn (chọn 4TC)</b>		Self Selection Subjects	<b>4</b>			

Order	Course	English name	Number of credits	Number of theoretical periods	Number of practical periods	Course code
16	An toàn vệ sinh lao động	Works Safety and Hygenic	2	30		KM702016
17	Khoa học quản lý	Management Science	2	30		KN702017
18	Kỹ năng mềm	Soft skills	2	25	10	CB702018
19	Phương pháp tiếp cận khoa học	Scientific Approach Methodology	2	30		KH702019
20	Sinh thái môi trường	Ecology and Environment	2	30		KM702020
21	Tâm lý học đại cương	Basic psychocology	2	30		CB702021
22	Toán cao cấp	Mathematic	2	<b>30</b>		CB702022
23	Vật lý	Physics	2	30		CB702023
24	Xã hội học đại cương	General Sociology	2	30		CB702024
<b>III. Giáo dục thể chất*</b>		<b>Physical Education</b>	<b>3</b>			
25	Bóng chuyền	Volleyball	1	0	30	CB701025
26	Bóng đá	Football	1	0	30	CB701026
27	Golf	Golf	1	0	30	CB701027
28	Cầu lông	Badminton	1	0	30	CB701028
29	Bóng ném	Handball	1	0	30	CB701029
30	Pickleball	Pickleball	1	0	30	CB701030
31	Võ thuật	Martial Art	1	0	30	CB701031
<b>IV. Giáo dục quốc phòng*</b>		<b>National Defense Education</b>	<b>165</b>			

Order	Course	English name	Number of credits	Number of theoretical periods	Number of practical periods	Course code
<b>B. Kiến thức giáo dục chuyên nghiệp</b>		<b>Professional Knowledge</b>	<b>114</b>			
<b>I. Khối cơ sở ngành</b>		<b>Basic Knowledge</b>	<b>36</b>			
<b>a) Các học phần bắt buộc</b>		<b>Compulsory courses</b>	<b>27</b>			
32	Chọn tạo giống cây rừng	Forest Tree Breeding	3	45	30	LS703020
33	Đo đạc lâm nghiệp	Forest Measurement	3	30	30	LS703021
34	Động vật rừng	Forest Animals	3	39	12	QR703020
35	Luật và chính sách trong QLTNR	Policy and Law in Forest Resource Management	3	45	0	QR703021
36	Quản lý sử dụng đất lâm nghiệp	Forestry Land Use Management	3	36	18	QR703022
37	Quy hoạch và sử dụng rừng	Forest Planning and Utilization	3	39	12	LS703022
38	Sinh thái rừng	Forest Ecology	3	39	12	LS703023
39	Thực vật rừng	Forest plants	3	30	30	QR703023
40	Thống kê sinh học	Biological statistics	3	30	30	LS703024
<b>b) Các học phần tự chọn</b>		<b>Optional courses</b>	<b>9</b>			
46	Biến đổi khí hậu	Climate change	3	39	12	KM703046
47	An toàn sinh học	Biosafety	3	39	12	CS703047
48	Nông nghiệp tuần hoàn	Circular Agriculture	3	39	12	KH703051
49	Vi sinh vật đại cương	General Microbiology	3	39	12	CN703055

Order	Course	English name	Number of credits	Number of theoretical periods	Number of practical periods	Course code
50	Sinh lý - sinh hóa	Physiology - Biochemistry	3	39	12	KH703053
51	Lâm nghiệp đô thị	Urban Forestry	3	39	12	LS703025
52	Khí tượng thủy văn rừng	Forest Meteorology	3	39	12	QR703023
<b>II. Khối chuyên ngành</b>		<b>Specialized knowledge</b>	<b>47</b>			
<b>a) Bắt buộc</b>		<b>Compulsory Courses</b>	<b>32</b>			
60	Dịch vụ môi trường rừng	Forest Environmental	3	39	12	LS703036
61	Điều tra sản lượng rừng	Forest Yield Inventory	3	36	18	LS703034
62	Khai thác & chế biến lâm sản	Forest Product Exploitation & Processing	3	39	12	LS703035
63	Kinh tế rừng	Forest Economics	3	39	12	LS703037
64	Kỹ thuật lâm sinh	Silvicultural Techniques	4	45	30	LS704032
65	Phương pháp thiết kế công trình lâm sinh	Methods for Designing Silvicultural Projects	3	30	30	LS703038
66	Quản lý rừng bền vững	Sustainable Forest	3	39	12	QR703035
67	Quản lý sâu bệnh hại	Forest Pathology	4	45	30	QR704036
68	Trồng rừng và phục hồi rừng	Afforestation & Forest Restoration	3	36	18	LS703033
69	Ứng dụng GIS trong lâm nghiệp	GIS Applications in Forestry	3	15	60	LS703039
<b>b) Tự chọn</b>		<b>Optional courses</b>	<b>15</b>			
71	Xây dựng và quản lý dự án	Project Construction and Management	3	39	12	KT703071

<b>Order</b>	<b>Course</b>	<b>English name</b>	<b>Number of credits</b>	<b>Number of theoretical periods</b>	<b>Number of practical periods</b>	<b>Course code</b>
72	Đa dạng sinh học	Biodiversity	3	39	12	QR703037
73	Dược liệu	Medicinal Herbs	3	39	12	CN703082
74	Giảm phát thải và tín chỉ các bon.	Emission Reduction and Carbon Credits	3	39	12	LS703040
75	Nông lâm kết hợp	Agroforestry	3	39	12	LS703041
76	Ứng dụng CNSH trong nông nghiệp	Application of Biotechnology in Agriculture	3	39	12	KH703090
77	Lâm sản ngoài gỗ	Non-timber Forest Products	3	39	12	QR703038
78	Nuôi cấy mô tế bào thực vật	Plant Cell Culture	3	39	12	CS703088
79	Quản lý lưu vực	Watershed management	3	39	12	QR703039
80	Khoa học gỗ	Wood Science	3	39	12	LS703042
81	Chuỗi giá trị trong LN	Forest Value Chain	3	39	12	LS703043
82	Kiểm định chất lượng lâm sản	Forest Product Quality Inspection	3	39	12	LS703044
83	Marketing	Marketing	3	39	12	KN703099
<b>III. Khối bổ trợ</b>		<b>Supplementary Knowledge Block</b>	<b>6</b>			
93	Nghiệp vụ kiểm lâm	Forest Ranger Operations	3	39	12	QR703032
94	Xây dựng mô hình trồng dược liệu dưới tán rừng	Designing medicinal plant models under forest canopy	3	39	12	DL703036
95	Đánh giá tác động môi trường	Environmental Impact Assessment	3	39	12	KM703095



Order	Course	English name	Number of credits	Number of theoretical periods	Number of practical periods	Course code
96	Quản lý các hệ sinh thái	Management of ecosystems	3	39	12	LS703045
97	Truyền thông trong quản lý tài nguyên	Communication in resource management	3	39	12	QR703034
<b>IV Khối thực hành, thực tập nghề nghiệp</b>		Practical and Professional Internship	<b>10</b>			
98	TTNN1. Thăm quan tìm hiểu về ngành học	Internship training 1	1		30	LS701093
99	TTNN2. Thực tập cơ sở ngành LS	Internship training 2:	3		90	LS703094
100	TTNN3. Thực tập chuyên ngành LS 1	Internship training 3:	3		90	LS703095
101	TTNN4. Thực tập chuyên ngành LS 2	Internship training 4:	3		90	LS703096
<b>V. Rèn nghề</b>		<b>Professional Training</b>	<b>5</b>			
102	RN1. Xây dựng vận hành vườn ươm	Skilled Practice 1: Nursery Establishment and Operation	1		30	LS701097
103	RN2: Trồng và chăm sóc rừng trồng	Skilled Practice 2: Planting and planted forest tending	2		60	LS702098
104	RN3: Xây dựng bản đồ số và cơ sở dữ liệu trong LN	Skilled Practice 3: Digital mapping and database development in forestry	2		90	LS702099
<b>VI. Thực tập tốt nghiệp</b>		<b>Graduation Internship</b>	<b>10</b>			
105	Khoá luận tốt nghiệp ngành LS	Thesis	10		300	LS710100

Order	Course	English name	Number of credits	Number of theoretical periods	Number of practical periods	Course code
	<b>Tổng số tín chỉ</b>	<b>Total credits</b>	<b>152</b>			

## 5. Proposed Training Plan for Agricultural Economics

### Semester 1:

Order	Course code	Course	Number of credits	Note
1	NN702008	General Informatics	2	
2	CB702007	Biology	2	
3	NN703011	English 1	3	
4	TN702015	Foundation law	2	
5		Physical Education 1	1	
6		<i>Elective Basic 1</i>	2	
7	LS703023	Forest Ecology	3	
8	LS701093	Internship training 1	1	
		<b>Total for Semester 1</b>	<b>16</b>	

### Semester 2:

Order	Course code	Course	Number of credits	Note
1	CB703004	Philosophy of Marxism and Leninism	3	
2	CB703009	Probability and Statistics	3	
3	CB704006	Chemistry	4	
4	NN703012	English 2	3	
5	KT702014	Innovation and entrepreneurship	2	
6		Foundation Physical Education 2	1	
7		<i>Elective Basic 2</i>	2	
8		<i>Elective core course 1</i>	3	
		<b>Total for Semester 2</b>	<b>21</b>	

### Semester 3:

Order	Course code	Course	Number of credits	Note
1	CB702002	Political economy of Marxism and Leninism	2	
2	NN703013	English 3	2	

3	LS703021	Forest Measurement	3	
4	QR703023	Forest plants	3	
5	QR703020	Forest Animals	3	
6	LS703024	Biological statistics	3	
7		Physical Education 3	1	
8	LS703094	Internship training 2	3	
		<b>Total for Semester 3</b>	<b>20</b>	

#### Semester 4:

Order	Course code	Course	Number of credits	Note
1	CB702001	Science socialism	2	
2	LS703020	Forest Tree Breeding	3	
3	QR703021	Policy and Law in Forest Resource Management	3	
4	QR703022	Forestry Land Use Management	3	
5		<i>Elective core course 2</i>	3	
6	LS701097	Skilled Practice 1: Nursery Establishment and Operation	1	
	LS702098	RN2: Trồng và chăm sóc rừng trồng	2	
7		Military (165 credits)		
		<b>Total for Semester 4</b>	<b>17</b>	

#### Semester 5:

Order	Course code	Course	Number of credits	Note
1	CB702005	Ho Chi Minh Ideology	2	
2	LS703034	Forest Yield Inventory	3	
3	LS703037	Forest Economics	3	
4	LS704032	Silvicultural Techniques	4	
5	QR704036	Forest Pathology	4	
6		<i>Elective core course 3</i>	3	
7	LS703095	Internship training 3	3	
		<b>Total for Semester 5</b>	<b>22</b>	

#### Semester 6:

Order	Course code	Course	Number of credits	Note
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1	LS703022	Forest Planning and Utilization	3	
2	CB702003	Vietnamese Communist Party History	2	
3	QR703035	Sustainable Forest	3	
4	LS703033	Afforestation & Forest Restoration	3	
5	LS703039	GIS Applications in Forestry	3	
6		<i>Elective Specialized course 1</i>	3	
7		<i>Elective Specialized course 2</i>	3	
8	LS702099	Skilled Practice 3: Digital mapping and database development in forestry	2	
		<b>Total for Semester 6</b>	<b>22</b>	

**Semester 7:**

Order	Course code	Course	Number of credits	Note
TT	Mã HP	Tên học phần	Số TC	
1	LS703038	Methods for Designing Silvicultural Projects	3	
2	LS703035	Forest Product Exploitation & Processing	3	
3		<i>Elective Specialized course 3</i>	3	
4		<i>Elective Specialized course 4</i>	3	
5		<i>Elective Specialized course 5</i>	3	
6		<i>Supplementary Knowledge Block 1</i>	3	
7		<i>Supplementary Knowledge Block 2</i>	3	
8	LS703096	Internship training 4	3	
		<b>Total for Semester 7</b>	<b>24</b>	

**Semester 8:**

Order	Course code	Course	Number of credits	Note
1	LS703036	Forest Environmental	3	
		<b>Total for Semester 8</b>	<b>3</b>	

**Semester 9:**

Order	Course code	Course	Number of credits	Note
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1	LS71100	Thesis	10	
		<b>Total for Semester 9</b>	<b>10</b>	

## 6. Guidelines for Implementing the Program

a. The training program is implemented according to the university training regulations of the Ministry of Education and Training and the University of Agriculture and Forestry.

The standard hours are calculated as follows:

1 credit = 15 Hours for Theoretical Instruction or Classroom Discussions

= 30 Hours for Laboratory Work or Practical Training

= 45 Hours for Self-Study

= 45 ÷ 90 Hours for On-Site Internships

= 45 ÷ 60 Hours for Completing Projects or Graduation Theses.

The number of hours for a course is a multiple of 15.

b. Foreign language output standards: According to the regulations of the University of Agriculture and Forestry. During the study period, the University may monitor the development of students' foreign language proficiency each academic year to determine the number of credits for courses that students are allowed to register for in the semester. Students can self-study or enroll in the foreign language competency development program according to the University's proposal.

## 7. Date and Level of Initial Approval

## 8. Curriculum Update Process

<p><b>First Update: August 8, 2018</b></p> <p>PLOs were developed to enhance professional competencies, foreign language proficiency, information technology skills, and soft skills, aligning with labor market demands.</p> <p>Course names and content were adjusted to meet the program's output standards and support international integration.</p> <p>Reduced general education credits, increased specialized credits, and expanded elective self-study credits.</p>	<p><b>Dean</b> <b>(Signed and full name)</b></p>
<p><b>Second Update: November 11, 2020</b></p> <p>Updated PLOs to improve learners' comprehensive competencies and meet labor market needs.</p> <p>Reviewed course names and content to ensure alignment with the PLOs and updated learning materials.</p> <p>Enhanced vertical and horizontal connectivity with training programs within and outside the university.</p>	<p><b>Dean</b> <b>(Signed and full name)</b></p>
<p><b>Third Update: May 31, 2022</b></p> <p>Updated PLOs to improve and supplement the program learning outcomes regarding autonomy and responsibility</p>	<p><b>Dean</b></p>

	<b>(Signed and full name)</b>
<p><b>Fourth Update: December, 2024</b></p> <p>Updated PLOs to improve learners’ comprehensive competencies and meet labor market needs.</p> <p>Reviewed course names and content to ensure alignment with the PLOs and updated learning materials.</p> <p>Enhanced vertical and horizontal connectivity with training programs within and outside the university.</p>	<p><b>Dean</b></p> <p><b>(Signed and full name)</b></p>
<b>HEAD OF FACULTY</b>	<b>RECTOR</b>